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10/554,249	10/25/2005	Yohei Ikawa	280052US90PCT	2731
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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER				
ROSATI, BRANDON MICHAEL				
ART UNIT		PAPER NUMBER		
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NOTIFICATION DATE		DELIVERY MODE		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/554,249

Applicant(s)

IKAWA, YOHEI

Examiner

BRANDON M. ROSATI

Art Unit

4114

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☒ Claim(s) 14-16 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/ISD)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____
- Paper No(s)/Mail Date 1/25/2006

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: The term "any one of the claims 1 to 10" on page 6, line 4 of the specification should clearly recite all the structural elements regarding to claims 1-10 therein, so as to clarify any confusion. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 6, 7, and 11-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 6 and 7, the phrase "second projection" is confusing because in claim 3 the phrase "two projections" is used and the examiner is unsure whether the "second projection" of claim 6 is the same as the ones in claim 3.

Regarding claim 11, it is unclear if this is an independent or dependent claim. If independent, the claim is improper because all of the structural limitations shown in claims 1-10 need to be recited. If dependent, the claim is improper because the preamble is misdescriptive. For the purposes of the examination, the examiner is treating claim 11 as a dependent claim and therefore claims 14-16 are also improper (see claim objections above).

Claims 12 and 13 are rejected for incorporating the above errors from their respective parent claims by dependency.

Claims 14-16 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim can not depend on another multiple dependent claim either directly or indirectly. See MPEP § 608.01(n). Accordingly, the claims 14-16 have not been further treated on the merits.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Japanese Utility Model (63-121282) (herein '282) .

Regarding claim 1, '282 discloses a side plate (19), on each end of a plurality of tube in a heat exchanger, wherein the heat exchanger comprising a pair of headers (5), which are spaced apart from one another by a plurality of parallel flat tubes (1), having corrugated fins between each tube, and the side plate (19) having protrusions (21) on the side opposite the corrugated fin and at each end portion (Figures 1, 2, and 12).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Utility Model (63-121282) (herein '282).

Regarding claim 2, Figures 1 and 2 shows a projection (21) positioned up to 135 mm from the header. Although the specific dimension is not disclosed, it would be obvious to one of ordinary skill in the art to vary the position of the protrusion based on design choice in order to ensure a better made heat exchanger.

8. Claims 3, 5-8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Utility Model (63-121282) (herein '282) in view of Baechner et al. (U.S. Patent No. 5,896,916).

Regarding claims 3 and 8, '282 discloses all the claimed limitations except two protrusions on the side plate spaced apart widthwise at each end. However, Baechner et al. discloses two projections (i.e. domes) (20) spaced apart widthwise from each other at each end of the side plate (i.e. side part) (6) (Figure 6 and Column 5, lines 39-45). Hence it would have been obvious, at the time the invention was made, to one of ordinary skill in the art, to modify the teachings of '682 with the two protrusions at each end spaced apart widthwise in order to distribute the force of the clamping better so as to not structurally deform the heat exchanger and lower its efficiency.

Regarding claims 5 and 10, the combined teachings of '282 and Baechner et al. disclose all the claimed limitations including circular projections (Figures 6 and 7 of Baechner et al.). It would be an obvious design choice to one of ordinary skill in the art to vary the diameter of the protrusions depending on how big the side plate was so as to keep the protrusions proportional to the overall size of the plate.

Regarding claim 6, '282 discloses all the claimed limitations except a second protrusion positioned inwardly from the end projection in the longitudinal direction. However, Baechner et al. discloses in Figure 2, second projections (i.e. elevations) (22) which are positioned inwardly from end protrusions in the longitudinal direction (Column 4, lines 50-54). Hence it would have been obvious, at the time the invention was made, to one of ordinary skill in the art, to modify the teachings of '682 with the second projections of Baechner et al., because adding the additional projections along the longitudinal direction would increase the overall increase the support of the pressure member and allow for the heat exchanger to be strapped together more easily.

Regarding claim 7, Baechner et al. discloses in Figure 2, second projections that are at a distance of up to 30 mm from the projection at each end. Although the specific dimension is not disclosed, it would be obvious to one of ordinary skill in the art to vary the position of the protrusion based on design choice in order to ensure a better made heat exchanger.

9. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Utility Model (63-121282) (herein '282) in view of Shimoya et al. (U.S. Patent No. 6,401,804 B1).

Regarding claim 4, '282 discloses all the claimed limitations except having projections with a height of between 0.3-1 mm. However, Shimoya et al. discloses protrusions (i.e. projection ribs) (14) with a height equal to or less than 2 mm (Column 15, lines 40-46). Hence it would have been obvious, at the time the invention was made, to one of ordinary skill in the art, to modify the teachings of '682 with the protrusions having a height between 0.3-1 mm because varying the heights of the projections only instead of the overall thickness of the side plate would allow for the cost of the heat exchanger to be reduced and still allow for the distribution of the force during clamping to occur more efficiently and thus improve the heat exchanger efficiency.

10. Claims 9 and 11 as best understood are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Utility Model (63-121282) (herein '282) in view of Baechner et al. (U.S. Patent No. 5,896,916) in further view of Shimoya et al. (U.S. Patent No. 6,401,804 B1).

Regarding claim 9, the combined teachings of '282, Baechner et al., and Shimoya et al. disclose all the claimed limitations including protrusions (i.e. projection ribs) (14) with a height equal to or less than 2 mm (Shimoya et al., Column 15, lines 40-46). It would be obvious to one

of ordinary skill in the art to make the second projections the same height as the other projections in order to prevent the heat exchanger from being lop sided and thus mess up the flow within the heat exchanger.

Regarding claim 11, it is noted that this claim is being treated as a dependent claim by the Examiner. The combined teachings of '282, Baechner et al., and Shimoya et al. disclose all the claimed limitations including as disclosed in '282, a heat exchanger with a side plate (19), on each end of a plurality of tube in a heat exchanger, wherein the heat exchanger comprising a pair of headers (5), which are spaced apart from one another by a plurality of parallel flat tubes (1), having corrugated fins between each tube, and the side plate (19) having protrusions (21) on the side opposite the corrugated fin and at each end portion (Figures 1, 2, and 12). It would be obvious to one of ordinary skill in the art to utilize any of the side plates as disclosed in claims 1-10 based on an obvious design choice depending on how the pressure member needed to be supported in order to allow for the heat exchanger to be strapped together more easily.

11. Claims 12 and 13 as best understood are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Utility Model (63-121282) (herein '282) in view of Baechner et al. (U.S. Patent No. 5,896,916) in view of Shimoya et al. (U.S. Patent No. 6,401,804 B1) and in further view of Anderson (U.S. Patent No. 4,201,263).

Regarding claims 12 and 13, the combined teachings of '282, Baechner et al., and Shimoya et al. disclose all the claimed limitations except using the heat exchanger in a refrigeration cycle, wherein the condenser comprises a heat exchanger (claim 12) and the evaporator comprises a heat exchanger (claim 14). However, Anderson discloses an ordinary

refrigeration cycle which consists of a compressor, condenser and evaporator (Column 4, lines 13-40). Hence it would have been obvious, at the time the invention was made, to one of ordinary skill in the art, to use the heat exchanger as shown in the combined teachings of '282, Bacchner et al., and Shimoya et al. with the refrigeration cycle of Anderson because the heat exchanger could increase and improve the overall performance of the cycle. It is noted that depending on what applications the heat exchanger is being used (i.e. remove or add heat to the system) would determine if the condenser comprised a heat exchanger or the evaporator comprised a heat exchanger.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kroetsch (U.S. Patent No. 5,667,004) discusses a typical side plate. Kato et al. (U.S. Patent No. 6,357,520) discusses a side plate.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRANDON M. ROSATI whose telephone number is (571)270-3536. The examiner can normally be reached on Monday-Friday 8:00am- 4:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joe Cheng can be reached on (571)-272-4433. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BMR
2/1/2008

/Joe H Cheng/
Supervisory Patent Examiner
Art Unit 4114